



## Save an Ice Cube: An Engineering Challenge

Sometimes it is important to figure out how to keep things cool on a hot day.

In this experiment and engineering challenge you are going to design a way to keep an ice cube from melting.

### Pre-experiment

Begin by getting an idea of how quickly an ice cube will melt outside. All you need is a bunch of ice cubes.

1. Choose places to leave your ice cubes. It's best if your cubes are all about the same size.

Pick spots in the sun, in the shade, on a rock, in the grass, on something light colored or on something dark.

2. Predict which one you think will melt the fastest. Which will last the longest?
3. Quickly place your ice cubes in all the locations you've chosen.
4. Continue to check on your ice cubes until they completely turn to water. Were your predictions correct?

### Design Challenge

Build a shade or container to keep an ice cube from melting outside on a warm summer day.

1. Draw your plans. Come up with a materials list.
2. Get your plan and materials list approved by your adult.
3. Build, troubleshoot, redesign as needed.
4. Test. You will need two ice cubes for your test.  
  
Place one ice cube under your shade structure or in your container. The other ice cube is your control. Place it right next to your design so that it's under the same conditions, except it isn't in your invention. A control helps you compare to see if your design made the situation better or worse.
5. And like every good engineer or inventor, **redesign and try again!**